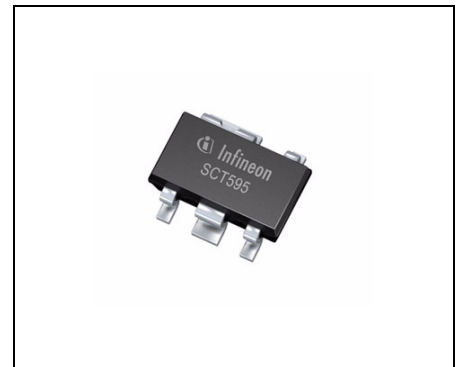




## Features

- 15 mA output current capability
- 1  $\mu$ A current consumption in standby mode
- Low quiescent current consumption  
60  $\mu$ A in ON mode
- Inhibit input
- Very small SMD-Package PG-SCT-595-5
- Wide operation range: 6.2 V to 42 V
- Wide temperature range: -40 °C to 150 °C
- Output protected against short circuit
- Overtemperature protection
- Green product (RoHS compliant)
- AEC qualified.



PG-SCT-595-5

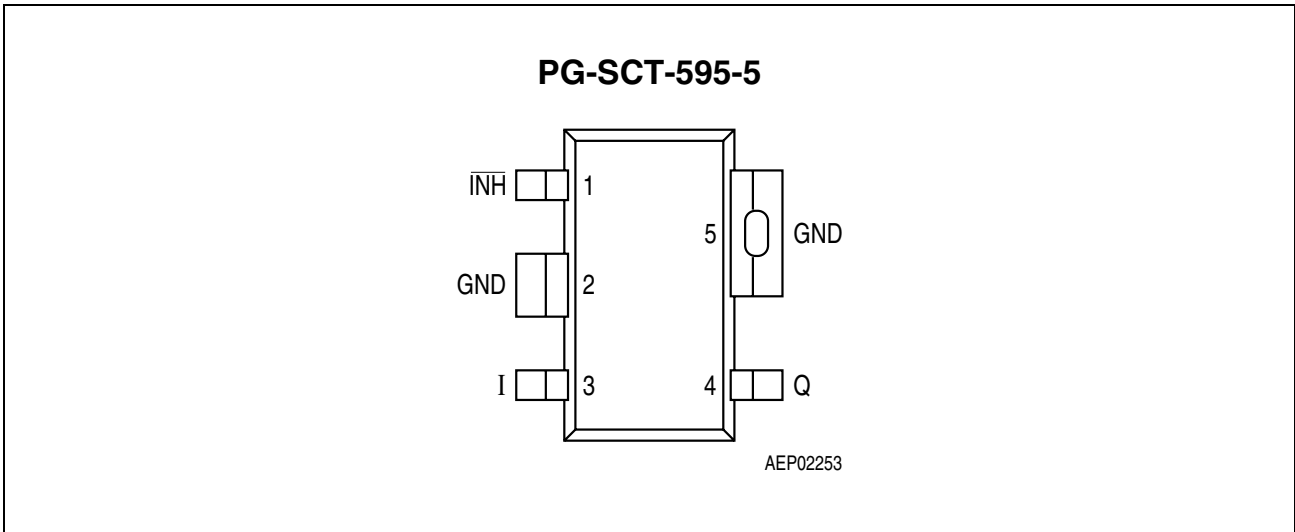
## Functional Description

The **TLE 4286 G** is a 5-V low-drop fixed voltage regulator in the very small SMD package PG-SCT-595-5. The maximum input voltage is 42 V. The output is able to drive a load of more than 10 mA while it regulates the output voltage within a 4% accuracy.

The device can be switched in stand-by mode via an inhibit input which causes the current consumption to drop below 1  $\mu$ A.

A temperature protection disables the IC at over temperature.

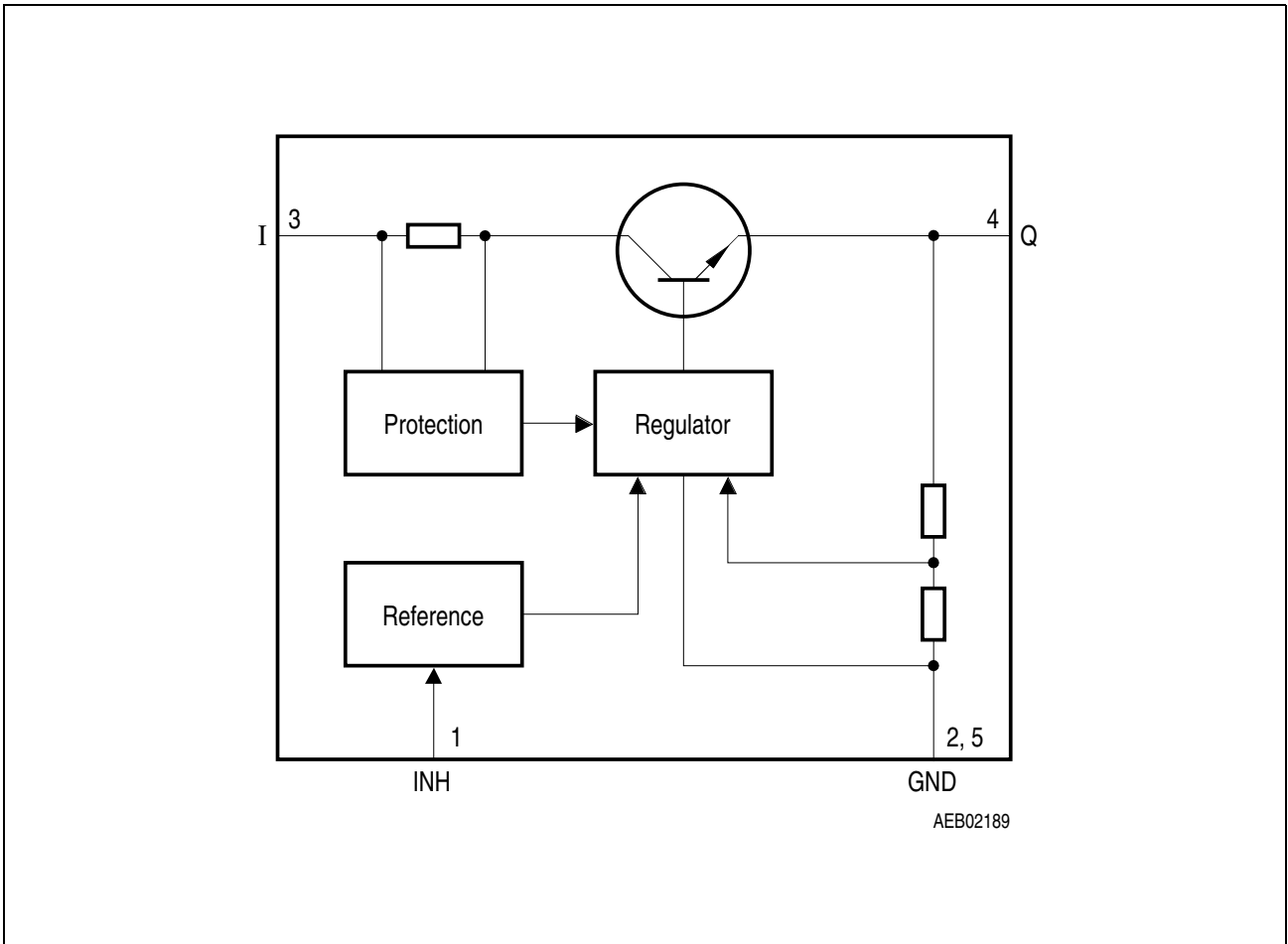
Type	Package	Marking
TLE 4286 G	PG-SCT-595-5	A1



**Figure 1** Pin Configuration (top view)

**Table 1** Pin Definitions and Functions

Pin No.	Symbol	Function
1	INH	<b>Inhibit input;</b> H for active ( $V_Q = 5\text{ V}$ ) and L for stand-by
2	GND	<b>Ground;</b> internally connected to pin 5
3	I	<b>Input voltage</b>
4	Q	<b>Output voltage;</b> must be blocked by a capacitor $C_Q \geq 1\ \mu\text{F}$ , $\text{ESR} \leq 10\ \Omega$ to GND
5	GND	<b>Ground;</b> internally connected to pin 2



**Figure 2**      **Block Diagram**

**Table 2 Absolute Maximum Ratings**
 $-40\text{ °C} < T_j < 150\text{ °C}$ 

Parameter	Symbol	Limit Values		Unit	Remarks
		Min.	Max.		
<b>Input</b>					
Voltage	$V_I$	-0.3	45	V	–
Current	$I_I$	-20	*	mA	* internally limited
<b>Output</b>					
Voltage	$V_Q$	-0.3	16	V	–
Current	$I_Q$	-20	*	mA	* internally limited
<b>Inhibit</b>					
Voltage	$V_{INH}$	-40	45	V	–
Current	$I_{INH}$	-500	*	$\mu\text{A}$	* internally limited
Current	$I_{INH}$	-5	5	mA	$-0.3\text{ V} < V_I < 45\text{ V};$ $t < 1\text{ ms}$
<b>Temperatures</b>					
Junction temperature	$T_j$	-40	150	$^{\circ}\text{C}$	–
Storage temperature	$T_{stg}$	-50	150	$^{\circ}\text{C}$	–
<b>Thermal Resistances</b>					
Junction pin	$R_{thj-pin}$	–	30	K/W	measured to pin 5
Junction ambient <sup>1)</sup>	$R_{thja}$	–	179	K/W	zero airflow zero heat sink area

1) Worst case regarding peak temperature.

*Note: Maximum ratings are absolute ratings; exceeding any one of these values may cause irreversible damage to the integrated circuit.*

**Table 3 Operating Range**

Parameter	Symbol	Limit Values		Unit	Remarks
		Min.	Max.		
Input voltage	$V_I$	6.0	42	V	–
Inhibit input voltage	$V_{INH}$	-0.3	40	V	–
Junction temperature	$T_j$	-40	150	$^{\circ}\text{C}$	–

**Table 4 Electrical Characteristics**
 $6.2\text{ V} < V_I < 36\text{ V}$ ;  $V_{\text{INH}} > V_{\text{INH, ON}}$ ;  $-40\text{ }^\circ\text{C} < T_j < 150\text{ }^\circ\text{C}$ ; unless otherwise specified

Parameter	Symbol	Limit Values			Unit	Test Condition
		Min.	Typ.	Max.		
<b>Output</b>						
Output voltage	$V_Q$	4.85	5.0	5.15	V	$T_j = 25\text{ }^\circ\text{C}$ ; $1\text{ mA} < I_Q < 10\text{ mA}$
Output voltage	$V_Q$	4.8	5.0	5.20	V	$1\text{ mA} < I_Q < 10\text{ mA}$
Drop voltage	$V_{\text{dr}}$	0.6	0.8	1.1	V	$I_Q = 10\text{ mA}$
Output capacitor	$C_Q$	1	–	–	$\mu\text{F}$	$\text{ESR} \leq 10\ \Omega$ at 10 kHz
Output current	$I_Q$	15	–	70	mA	–
<b>Current Consumption</b>						
Quiescent current	$I_q$	–	60	100	$\mu\text{A}$	$I_Q < 10\text{ mA}$ ; $V_I = 13.5\text{ V}$
Quiescent current (stand-by)	$I_q$	–	–	1	$\mu\text{A}$	$V_{\text{INH}} < V_{\text{INH, OFF}}$ ; $T_j < 85\text{ }^\circ\text{C}$
Quiescent current (stand-by)	$I_q$	–	–	5	$\mu\text{A}$	$V_{\text{INH}} < V_{\text{INH, OFF}}$
<b>Regulator Performance</b>						
Load regulation	$\Delta V_Q$	–	5	10	mV	$0\text{ mA} < I_Q < 10\text{ mA}$ ; $V_I = 6.2\text{ V}$ ; $T_j \leq 85\text{ }^\circ\text{C}$
Line regulation	$\Delta V_Q$	–	5	10	mV	$I_Q = 5\text{ mA}$ ; $T_j \leq 85\text{ }^\circ\text{C}$
Power supply ripple rejection	$PSRR$	–	60	–	dB	$f_r = 100\text{ Hz}$ ; $V_r = 0.5\text{ Vpp}$
<b>Logic Inhibit Input</b>						
Inhibit ON-threshold	$V_{\text{INH, ON}}$	–	–	3.5	V	$V_Q \geq 4.8\text{ V}$
Inhibit OFF-threshold	$V_{\text{INH, OFF}}$	0.3	–	–	V	$V_Q \leq 0.8\text{ V}$
Inhibit input current H-state	$I_{\text{INH, ON}}$	–	10	15	$\mu\text{A}$	$V_{\text{INH}} = 5\text{ V}$
Inhibit input current L-state	$I_{\text{INH, OFF}}$	-2	0	2	$\mu\text{A}$	$V_{\text{INH}} = 0\text{ V}$

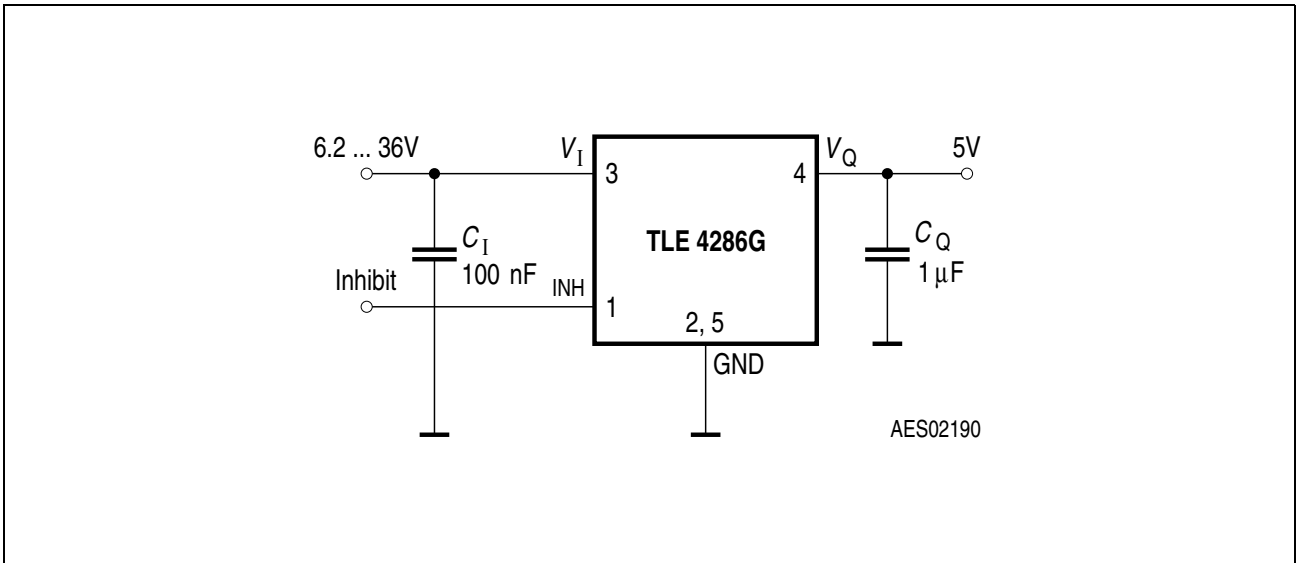
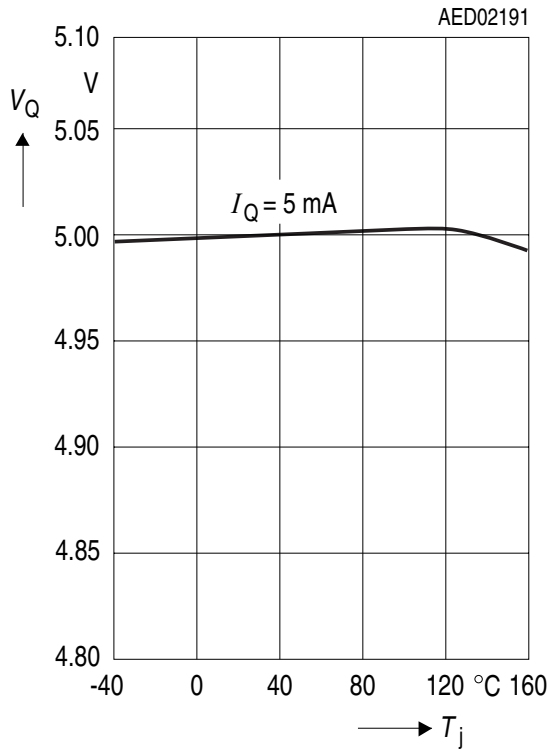


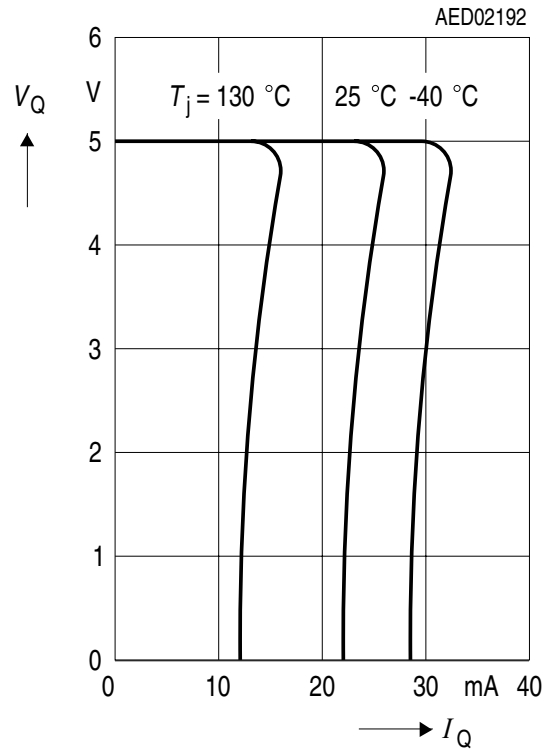
Figure 3 Application Circuit

Typical Performance Characteristics

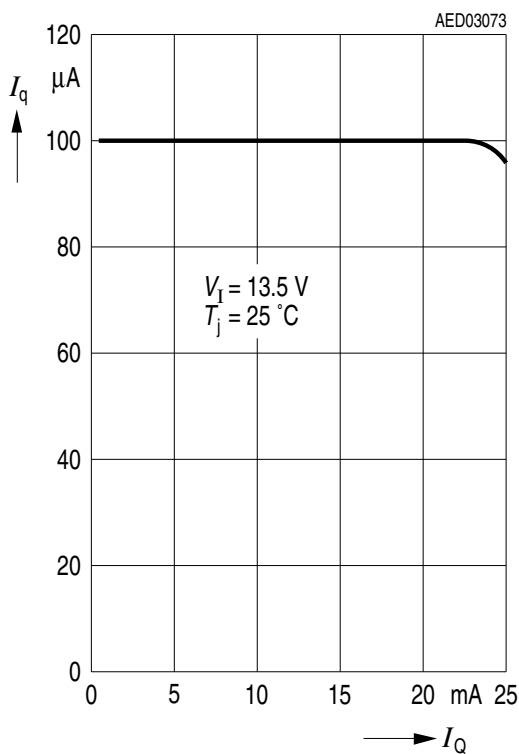
Output Voltage  $V_Q$  versus Temperature  $T_j$



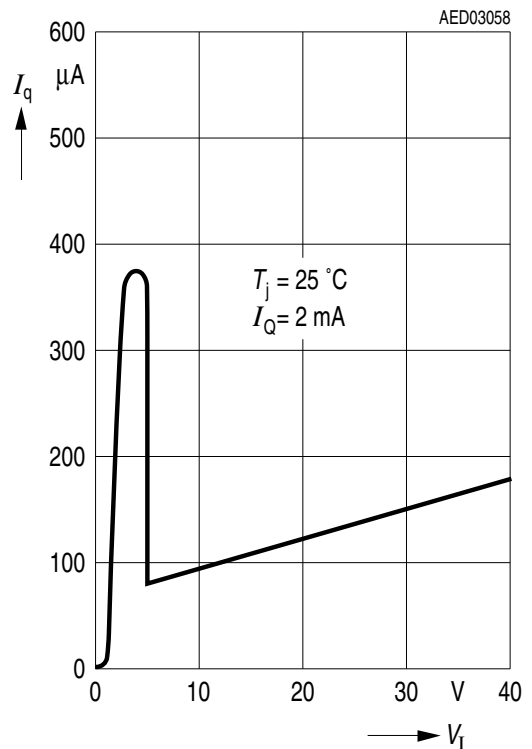
Output Voltage  $V_Q$  versus Output Current  $I_Q$



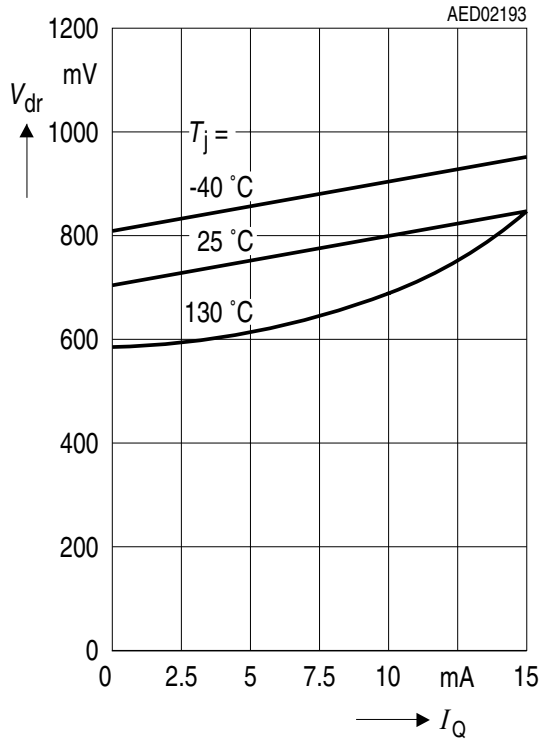
Current Consumption  $I_q$  versus Output Current  $I_Q$



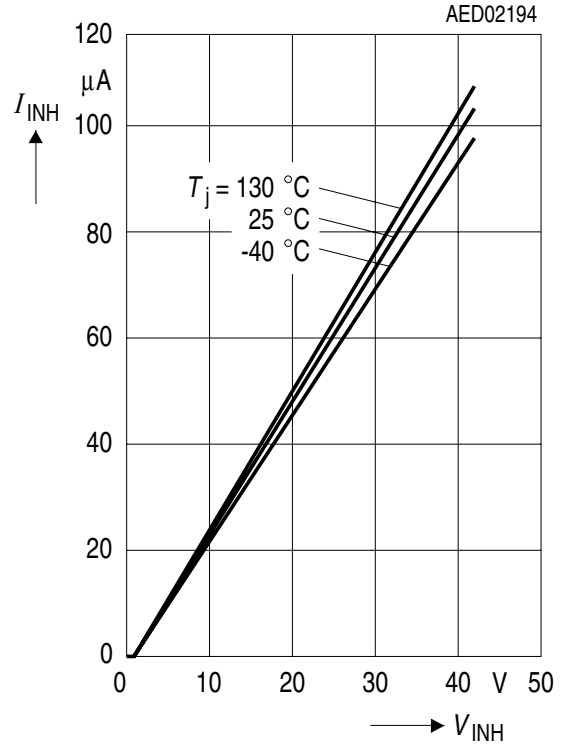
Current Consumption  $I_q$  versus Input Voltage  $V_I$



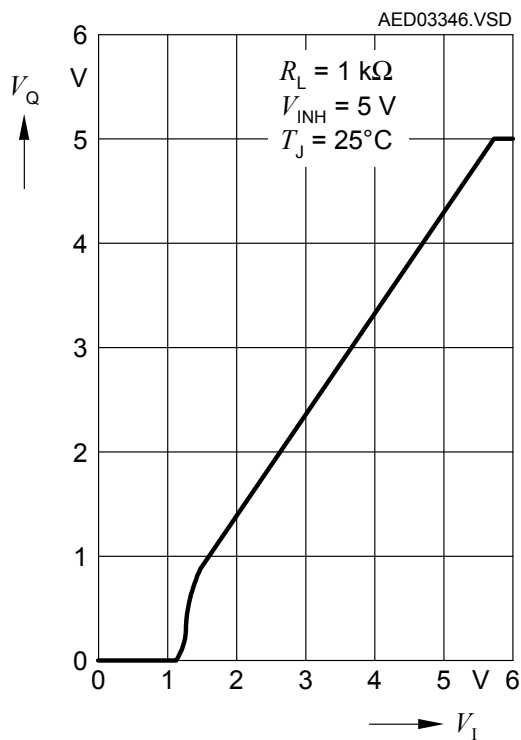
**Drop Voltage  $V_{dr}$  versus Output Current  $I_Q$**



**Inhibit Voltage  $V_{INH}$  versus Inhibit Current  $I_{INH}$**



**Output Voltage  $V_Q$  versus Input Voltage  $V_I$**





Package Outlines

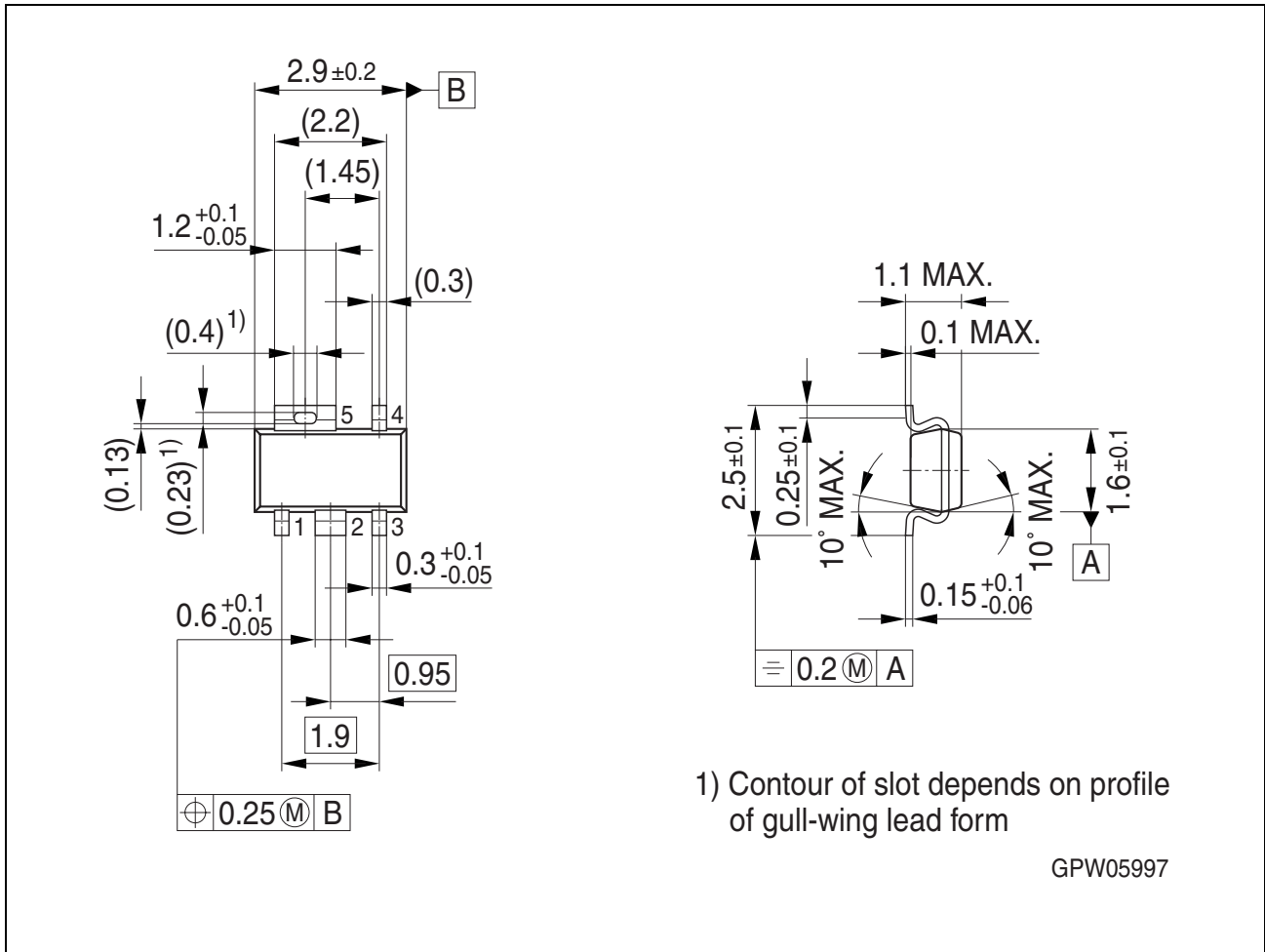


Figure 4 Outline PG-SCT-595-5

Green Product (RoHS compliant)

To meet the world-wide customer requirements for environmentally friendly products and to be compliant with government regulations the device is available as a green product. Green products are RoHS-Compliant (i.e Pb-free finish on leads and suitable for Pb-free soldering according to IPC/JEDEC J-STD-020).

You can find all of our packages, sorts of packing and others in our Infineon Internet Page "Products": <http://www.infineon.com/packages>.

SMD = Surface Mounted Device

Dimensions in mm

## Revision History

Version	Date	Changes
Rev. 2.3	2008-04-21	Initial version of RoHS-compliant derivate of TLE 4286 G. <b>Page 1</b> : AEC certified statement added. <b>Page 1</b> and <b>Page 9</b> : RoHS compliance statement and Green product feature added. <b>Page 1</b> and <b>Page 9</b> : Package changed to RoHS compliant version. <b>Page 1</b> : Marking information added. <b>Page 1</b> : Adapted description to values given on <b>Page 5</b> . Not a change of electrical characteristics. Legal Disclaimer updated
Rev. 2.2	2004-01-01	Final datasheet

**Edition 2008-04-21**

**Published by  
Infineon Technologies AG  
81726 Munich, Germany**

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